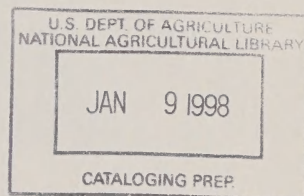


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**A
National
Program
of Research for**

**FARM ADJUSTMENTS,
PRICES AND INCOME**



Prepared by
A JOINT TASK FORCE OF THE
U. S. DEPARTMENT OF AGRICULTURE
AND THE STATE UNIVERSITIES
AND LAND GRANT COLLEGES

United States
Department of
Agriculture



National Agricultural Library

FOREWORD

The United States Department of Agriculture and State Agricultural Experiment Stations are continuing comprehensive planning of research. This report is a part of this joint research planning and was prepared under recommendation 2 (page 204, paragraph 3) of the National Program of Research for Agriculture.

The Task Force which developed the report was requested to express their collective judgment as individual scientists and research administrators in regard to the research questions that need to be answered, the evaluation of present research efforts, and changes in research programs to meet present and future needs. The Task Force was asked to use the National Program of Research for Agriculture as a basis for their recommendation. However, in recognition of changing research needs it was anticipated that the Task Force recommendations might deviate from the specific plans of the National Program. These deviations are identified in the report along with appropriate reasons for change.

The report represents a valuable contribution to research plans for agriculture. It will be utilized by the Department and the State Agricultural Experiment Stations in developing their research programs. It should not be regarded as a request for the appropriation of funds or as a proposed rate at which funds will be requested to implement the research program.

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This report has been prepared in limited numbers. Persons having a special interest in the development of public research and related programs may request copies from the Research Program Development and Evaluation Staff, Room 318-E Administration Bldg., USDA, Washington, D.C. 20250.

November 1968

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PREFACE

Background

The long-range study, "A National Program of Research for Agriculture," conducted by a joint USDA-SAES Task Force, was published in October 1966. The second recommendation of the study called for a more systematic and continuing mechanism that would facilitate joint research program planning, evaluation and coordination. The Agricultural Research Planning Committee at its July and December 1966 meetings recommended the establishment of task forces to develop coordinated State-Federal plans for specified areas of research. Subsequently thirty-two task forces were established of which this is one.

Authority

The Joint Task Force on Farm Adjustment, Price and Income Research was appointed in memoranda of Dr. G. L. Mehren, Assistant Secretary of Agriculture dated April 12, 1968, and Director Arlon G. Hazen, Chairman, Experiment Station Committee on Organization and Policy dated March 27, 1968.

Membership

- USDA -- C. Kyle Randall, Chief, Farm Income Branch, Economic and Statistical Analysis Division, Economic Research Service, Co-Chairman
Rex F. Daly, Chairman, Outlook and Situation Board, Economic Research Service
R. L. Rizek, Assistant Chief, Commodity Analysis Branch, ESAD, ERS
R. R. Robinson, Agricultural Economist, Cooperative State Research Service
B. Ralph Stauber, Chief, Agricultural Price Statistics and Farm Labor Branch, Agricultural Estimates Division, Statistical Reporting Service
W. B. Sundquist, Director, Farm Production Economics Division, ERS
- SAES -- G. B. Wood, Associate Dean of School of Agriculture, Director, Agricultural Experiment Station, Oregon State University, Co-Chairman
G. E. Brandow, Professor, Agricultural Economics, Department of Economics, Pennsylvania State University
K. R. Tefertiller, Professor of Agricultural Economics, and Chairman of Department, University of Florida
Earl Heady, Executive Director, The Center for Agricultural and Economic Development, Iowa State University
Eldon Weeks, Associate Professor, Department of Agricultural Economics, Washington State University

Staff Secretary -- Max Hinds, Research Program Development and Evaluation Staff

Assignment

The Task Force on Farm Adjustment Prices and Income was asked to:

- (1) Review Research Problem Areas 316, 506, 511, 807 and 808 in the "A National Program of Research for Agriculture"
- (2) Review the recommended projections in terms of Scientist Man Years
- (3) Indicate the areas of research that need emphasis
- (4) Develop supporting information about the Research Problem Areas that can be used in evaluating, justifying, programming and funding research activities
- (5) Recommend procedures for organizing and carrying out the research involved.

Farm Adjustments, Prices and Income

INTRODUCTION

Research in the farm adjustment, prices, and income brings into focus all of the diverse economic forces that impinge on farms and farmers, shows how the food and agriculture system as a whole works, and provides the economic information needed for policy decisions. In A National Program of Research for Agriculture the research field is divided in five research problem areas: (1) Individual Farm Adjustments and Management, RPA 316; (2) Supply, Demand and Price Analysis, RPA 506; (3) Improvement in Agricultural Statistics, RPA 511; (4) Changing Structure of Agriculture, RPA 807 and (5) Government programs to Balance Farm Output and Market Demand, RPA 808. Although the Task Force accepts this classification for the purpose of its report, interrelationships within the field are so strong that division into separate research problem areas may complicate the overall research program. For example, RPA 316, Farm Adjustments and Management and RPA 807, Structural Changes in Agriculture are so interdependent that separation is of little value in identifying needed research. Likewise, RPA 506, Supply, Demand and Price Analysis must depend upon RPA 511, Improvement in Agricultural Statistics. In turn, RPA 808, Government Programs to Balance Farm Output and Market Demand depends on RPA 506 for research tools and techniques.

The interrelationships are not limited to those among the RPA's in the Farm Adjustment, Prices and Income field. They also radiate between this field and the other fields of economic research particularly those assigned to the Task Forces on Marketing and Competition and Foreign Aid. Even this does not exhaust the interrelationships since much of the research properly classified as farm management research is included under other RPA's such as 313 Improved Livestock and Poultry Management Systems and 309 "Systems Analysis in Production of Field Crops". However the Task Force report evaluates the research in the context of the previously designated RPA's. Reports of other Task Forces which reflect the common discipline can contribute to the evaluation.

In view of this complex series of interrelationships, the Task Force decided that time devoted to refinement of the assignment of research to specific RPA's and precise allocation of SMY's would be an unproductive use of valuable resources.

The wisdom of this decision was demonstrated by the fact that there was a substantial reclassification of the 1966 base year SMY's among the several RPA's assigned to the Task Force. This was made known to the Task Force after the preliminary draft of the report had been completed. The net effect of the redistribution was to reduce the total number of 1966 SMY's in the five RPA's to 309. The recommended SMY's for the 10 years were increased slightly to 517.

We are providing general guidelines for research in farm adjustment, prices, and income during the next 10 years. These guidelines are subject to periodic review and revision to insure that they retain their relevancy since national and world conditions can cause new problems to take on urgency in a short period of time.

Farm Adjustment

Meaningful research in many areas associated with farm adjustment, prices and income must involve the total economic system. Structural changes in the nonagricultural sector materially influence changes in the agricultural sector and vice versa. Advances in technology, computer applications and in systems engineering along with changing relative prices of resources are profound forces influencing the structure of agriculture. The entry of industrial and conglomerate firms into agricultural production, financing, management, buying and selling has introduced new dimensions into questions on the size and organization of viable economic units in agriculture. Likewise, social and cultural goals of society necessitate a continuing appraisal of farm adjustments, income and policy. Because of the complexity of these research problems they must be structured in broad segments which can reflect the multiple forces and complex issues which bear on significant solutions.

Farming has changed from an industry based largely on land and labor to one resting mainly on capital and with rapidly growing financial, technological, organizational and managerial components. Individual farmers must make constant changes in their farming operations if they are to obtain adequate family income and living standards, and continue in an industry growing increasingly competitive. The rapid insertion of new technology into farming not only displaces labor but also is a strong force in increasing farm size, encouraging sophisticated units and requiring much larger amounts of capital. In addition to the increased capital requirements associated with new technology and a high incidence of purchased inputs, land values have appreciated very rapidly since World War II. The amount of capital required to finance the real estate component and allow a competitive scale of operation is growing rapidly. All of these developments require increased "management know-how" on the part of farmers.

Supply, Demand and Price

The primary function of research in the area of supply, demand, and price analysis has been to show how the farm economy works. Farming has been an independent sector coordinated with the rest of the economy largely through the price system, and quantitative information about supply, demand, and price behavior has been the principal basis upon which the coordination could be described and explained. Such information has been of substantial practical value to farmers, cooperatives, processors, and distributors interested in sales of and prices for their products, and it has been essential to appraisal of programs and development of alternative policies intended to improve farm prices and incomes. Supply, demand and price

analyses provide the tools and techniques which are the basis of economic outlook work, national budgeting and general economic intelligence necessary for private and public decision making.

Research in this area in the future should retain the same primary function and purposes but should be revised and expanded to suit changes taking place in farming and in the agribusiness complex as a whole. New technology for years has been one of the most important determinants of farm output and resource use. Export markets have become a more important part of total demand. Particularly important is the fact that the increasing interdependence within the whole agribusiness sector often requires economic research to deal with farm supply, farm production, and processing or distribution questions simultaneously rather than in a piecemeal way.

Research areas should be broad enough to be topics for research by groups of research workers including coordinated efforts of research workers in different areas of the country. This is particularly true for RPA 506-J as described below. That area is highly important and calls not only for revised research approaches but also for new administrative arrangements for effective team research involving both USDA and SAES personnel.

Better Data

The need for adequate and reliable data to support meaningful economic research becomes more critical and significant as our society and its systems become more complex. There is a unique relationship between economic research and data collection. Unless adequate and timely data are forthcoming, it is not possible for any economic research to be useful in solving the problems of man. Therefore, special emphasis is directed in this report to obtaining more accurate basic data relative to what is going on in our society. New systems of data collection must be devised. It is also important that adequate SMY's be assigned to permit the collection and dissemination of timely accurate economic statistics.

Farm Structure Changing

Among the structural changes in agriculture of particular interest are those of the rapid decline in the number of and the increased size of firms; changes in distribution of resource ownership, resource returns and decision-making functions among family scale farms, the farm supply industry, processors and distributors of farm products and, more recently, among conglomerate corporations that have become engaged in farming. The historical depiction of farming as consisting of "owner operated units with the operator and his family in residence on the farm" no longer adequately characterizes agriculture, if indeed, it ever did.

Analysis of Government Farm Programs

Because of the nature of economics as a subject discipline and the area of government programs as a field of investigation, the Task Force

recommendations under RPA 808--Government Programs to Balance Farm Output and Market Demand--probably overlap many other RPAs.

The Task Force points out that much of the research under this RPA has been, for various reasons, too limited in scope to spell out all the important relations among farmers, the public sector, and nonfarmers, or to permit the utilization of such information for the evaluations that need to be made. Identification of these relationships on a continuing basis will support a more systematic approach to broad questions concerning the impacts of alternative programs, policies, and strategies that are useful in planning government programs.

Systematic evaluations of government programs are application areas for the basic models of economic structures and relationships. Detailed models which approximate reality are necessarily big and complex. Economies and subeconomies are systems that must be described and explained in model form before changes in them can be evaluated. Consequently, at least one research topic under RPA 808 is aimed at economic "model" construction and maintenance. Nearly all the other topics are described in a manner that assumes a "model" of appropriate scope and quality either exists or will be developed as a procedural phase of research under that topic.

Recommendations and Benefits

The Task Force recommendations are expressed within the limits of the SMY's included in the long-range study that are shown in the table at the end of this section. In view of the dynamic changes required for this research area, the projected increases seem far too small to accomplish the research mission identified by this Task Force. For example, if full and meaningful evaluation of public policies, programs, and strategies is to be established on a continuing basis in ten years, the SMY's recommended in the long-range study are not sufficient to accomplish the job. To make significant advances in this area of research this Task Force would recommend at least as many as 100 SMY's in 10 years compared to the 68 SMY's shown in the table.

The Task Force is equally concerned about the likely availability of researchers who are adequately trained to conduct creditable research of the type that is most urgently needed. The Task Force recommends that USDA and SAES consider methods of attracting a larger share of the available workers who enter the field and encouraging them to acquire the broad training necessary.

Although the Task Force has accepted the convention of expressing the general dimensions of the projected research in terms of SMY's, the projected research is not limited to personal services but also involves substantial proportions of data collection and processing.

The Magnitude of Potential Benefits from economic research are often impossible to quantify. For the most part, the benefits are

received in the form of the probabilities of doing "right" things as related to human goals and values. Such things as human welfare, human satisfactions, human aspirations, and political acceptability are difficult if not impossible to measure in commonly used cardinal terms. Public sector policy and program decisions are nearly always complex in the sense that the decisions result in "gainers" and "losers." "Right," "wrong", and "acceptable" programs are judged thusly on the basis of the magnitude and numbers of gains, losses, gainers, and losers in relation to a number of human, financial, and social criteria. Thus, many of the costs of doing "wrong" things are manifest in terms of private anguish and public unrest.

We have not attempted to attach dollar signs to the possible benefits of the projected research. If it led to the achievement of a modest increase in gross farm income or a modest reduction in farm production expenses or farm program costs, these benefits would be high multiples of any conceivable expenditure for economic research.

FARM ADJUSTMENT, PRICES AND INCOME Summary of
Inventory and Recommended SMY's

Research Problem Areas	1966 1/				10 Year 2/			
	SAES	USDA	TOTAL		SAES	USDA	TOTAL	
316 Farm Adjustments and Management	64	52	116		111	68	179	
511 Improvement of Agricultural Statistics	---	12	12		---	21	21	
506 Supply, Demand & Price Analysis (except Forestry)	50	38	88		83	60	143	
807 Structural Changes	26	31	57		56	50	106	
808 Government Programs	18	18	36		32	36	68	
Total	158	151	309		282	235	517	

1/ Inventory of Agricultural Research, Volume I, Table 1, June 1966, as revised in accordance with a redefinition of economic research classification.

2/ A joint committee representing the Experiment Station Committee on Organization and Policy and the USDA reviewed the manpower allocations and recommended the SMY's shown.

II RESEARCH GOALS AND PROBLEM AREAS

A. Efficient Production of Farm and Forest Products -- Goal 3

The objective of research under this goal in "A National Program of Research for Agriculture" is to produce an adequate supply of farm and forest products at decreasing real production costs. With respect to economics, the program involves research directed to the selective of enterprises and the kinds, amounts, and combinations of inputs that will give maximum efficiency in farm and forest enterprises.

The general objective is broken down into 16 research problem areas. The last of these - RPA 316 Farm Adjustments and Management - was assigned to this Task Force. This research problem area has been divided into four subareas. A recommended program of research in each of these subareas is presented in the pages which follow.

The recommended level of research effort for RPA 316 involves a ten year increase of 54 percent.

<u>Inventory</u>		<u>Recommendation</u>
	<u>1966</u>	<u>10 years</u>
SMY's	116	179

TITLE: Financing the Farm Business. RPA 316-A

SITUATION: Farmers encounter severe problems in getting established in farming and in planning for continued growth of the farm firm. A major topic needing research attention is that of "financing the farm business." Many types of farms require a total production plant (land, buildings, equipment, livestock, etc.) of \$200,000 to \$300,000. Credit is available to some farm operators for some purposes, but not to all operators in the amounts they need. Price and production risks and the vulnerability to major financial losses require sound information on which to base decisions for acquiring and managing physical and financial resources.

OBJECTIVES: To determine effective methods by which farmers can acquire and manage the capital resources needed for an economically viable and competitive farm business and analyze alternative supply sources for capital and their effect on farms and agricultural structure. This includes determination of (a) sources of capital and financing, (b) instruments for acquiring access to such capital and (c) procedures for determining the relative profitability of acquiring different financial resources via different procedures.

RESEARCH APPROACHES:

A. Determine the resource (capital) requirements for economically viable farms in different types of farming.

B. Determine and evaluate the means for acquiring resources: Renting, purchase, purchase on contract, incorporation, use of traditional credit institutions, custom hiring, and joint ownership and study new procedures for resource acquisition.

C. Estimate the rates of return to the investment, ownership, and entrepreneurship functions in different types of farming and for different farm size and tenure situations.

D. Combine information in (A) to (C) to provide guidelines for acquiring the financial resources needed in farming and for managing them.

E. Make special studies of the procedures and time schedule by which growth of the farm firm can be accomplished through either internal or external financing.

F. Study the particular problems associated with intergeneration transfer of farm real estate and other production resources.

CHARACTER OF POTENTIAL BENEFITS: Better information will improve the basis for management advice to farmers and broaden the intelligence base for public policy formation and administration.

TITLE: Economics of Farm Size and Specialization. RPA 316-B

SITUATION: Rapid changes have occurred in production technology and production costs as well as in the prices and quality standards for farm products. Farmers must constantly evaluate adjustments in the size and organization of their farm in the enterprises they have and in the production and management practices they employ. Old questions of the optimal size and combination of enterprises continue to be important. In addition, new questions of the economics of "farm size and specialization" are associated with new production technologies and with the possibility of external economies in the buying of production inputs, in the selling of products and in the financing of specialized production systems.

OBJECTIVES: To determine the cost and profitability of new production technology available to farmers and to determine the economics of profitable enterprise size, combination and management and the implications for farm numbers and sizes.

RESEARCH APPROACHES:

- A. Use statistical and economic engineering procedures to measure the size-cost relationships for major farm enterprises and to evaluate the profitability of specialization and use of new technology and management systems.
- B. Through intensive study of family-scale and large-scale farming operations, determine the extent, if any, to which per unit production costs or product prices ~~are~~ influenced by large scale purchasing of inputs and selling of products.
- C. Conduct special analyses of the economics of mechanization-labor substitution in farming, particularly in labor-intensive farming such as vegetables, fruit, tobacco and dairy.
- D. Use budgeting, programming, and regression analyses to estimate the optimal size and combinations of enterprises and the profit levels associated with each for major types of farming.
- E. Conduct special studies to determine the possibilities for technology and management systems to reduce production costs particularly for those farm commodities (such as cotton and dairy products) for which competition from substitute products or foreign producers is of critical importance. Both surveys to determine the size of individual cost components and economic-engineering appraisals and statistical estimation of cost reduction possibilities are needed.

CHARACTER OF POTENTIAL BENEFITS: Efficiency and productivity of farms can be increased and production costs reduced by successful research in this area.

TITLE: Principles and Strategies of Management. RPA 316-C

SITUATION: Rapid increases in the scientific and business complexity of farming require more complex management systems and greater managerial capacity by farmers. Farmers must understand complex production and management systems and be competent financial managers as well if they are to realize an adequate labor and management income from farming.

OBJECTIVES: Provide farmers with adequate information and training so as to handle competently important management principles and strategies and provide decision procedures and strategies to allow optimal selection of alternatives under uncertain market and production situations.

RESEARCH APPROACHES:

A. Devise management systems, principles, and farm business analyses so as to permit farmers to set-up managerial systems and strategies of their own and appraise the profitability to them of production and management systems proposed by others (the latter including farm supply dealers, integrators, and others). Research needs include management games for applied management problems faced by farmers, and model programs for organizing farms of different types.

B. Construct model leases, purchase contracts, sales contracts, bargaining contracts, procedures for incorporation, and other instruments which farm managers might effectively use together with an analysis of the advantages and disadvantages of using such instruments. In the conduct of this research and that under (A) above, it will be necessary to modify these analyses depending on the type of farming and tenure arrangements involved.

CHARACTER OF POTENTIAL BENEFITS: Better management can lead to more efficient production of farm products and improved income to farmers.

TITLE: Improving management decision-making. RPA 316-D

SITUATION: In the case of a number of farm products, particularly the specialty crops and some livestock products, the vertical range over which management decisions are critically related extends all the way from the acquisition of farm supplies on the one hand and to the sale of farm products at retail on the other.

Thus, farmers must acquire information and expertise not only in the production process within the farm gate, but on questions of where, how and when to buy production inputs and services and sell farm products as well.

OBJECTIVES: To provide farmers with an improved basis for management decisions over a broad vertical range of agricultural activities so they can improve their incomes, competitive positions and economic power. Also, to evaluate the desirability of specializing over a shorter or integrating over a wider vertical range of farm production and related activities.

RESEARCH APPROACHES:

A. Provide analyses of the costs and benefits of purchasing or not purchasing different kinds of production inputs and services (the latter including such items as commercial management services, application of fertilizer and chemicals by farm supply firms from which they are purchased, and others). Both statistical estimation of costs and benefits and case studies will be required.

B. Appraise the feasibility of vertical integration of farm related activities by farm producers as compared to such integration by farm supply firms or food processors. This requires cost-benefit estimates of adding or relinquishing vertical stages in the production of food and fiber products and an evaluation of the extent to which successive stages are interdependent. It also requires a study of the feasibility of adding or relinquishing stages to the activities of individual farmers or farmer groups.

CHARACTER OF POTENTIAL BENEFITS: A broader base for informed management decision making can help farmers improve their competitive position and increase their bargaining power.

B. Efficiency in the Marketing System -- Goal 5

Five objectives are specified for this research in "A National Program of Research for Agriculture". These are (A) to provide farmers with better market guides in making production and marketing decisions; (B) to improve the quality and availability of farm and forest production items and services; (C) to facilitate the distribution of farm and forest products; (D) to improve the quality and availability of farm and forest products; and (E) to reduce the resources required in the transfer of farm and forest products from producer to consumer so that producer prices may be enhanced and/or consumer prices reduced.

These general objectives are broken down into 11 research problem areas of which two -- RPA 506 Supply, Demand and Price Analysis and RPA 511 Improvement of Agricultural Statistics are the concern of this Task Force.

RPA 506 is divided into 10 subareas. RPA 511 is not further divided. The recommended program of research for each of the subareas and for RPA 511 is presented in the next several pages.

An increase of 63 percent is recommended for RPA 506. For RPA 511 the recommended increase is 75 percent.

	<u>Inventory</u>	<u>Recommendation</u>
	<u>1966</u>	<u>10 Years</u>
RPA 506, SMY's	88	143
RPA 511, SMY's	12	21

TITLE: Effects of prices on production of farm products. RPA 506-A

SITUATION: Farmers' adjustments of production in response to price greatly influence how well markets stay in balance, the level of farmers' incomes, and efficiency in the use of resources. Knowledge of how farmers collectively react to changes in prices is important to individual producers making operating decisions for the future, to agricultural processing and supply firms serving farmers, and to framers of farm policy. New technology often obscures the effect of price on output, and technological change, increasing specialization, larger size of farm, and contracting probably basically alter the effect itself. Supply response research is needed to enlarge basic knowledge in this area and to obtain currently useful measures of the effects of price on output as technology and farm structure continue to change.

OBJECTIVES: To obtain numerical estimates of the response of production of farm commodities--individually, by groups, and in total--to changes in prices over both short and long periods of time; to ascertain the influence of technology and farm structure on response to price.

RESEARCH APPROACHES:

A. Apply econometric methods to time series data on prices, production, and various measures of, or proxies for, the level of technology, specialization, farm size, and the like. Make analyses for regions of the U.S. that differ in these respects, and study successive time periods to attempt to estimate the effect of time on response parameters.

B. Draw upon farm management and regional or national adjustment studies to determine production response to price under normative assumptions; relate the results of such studies to results of time series analyses.

C. Study in a qualitative way the effects of increasing mechanization, size, specialization, etc., on incentives and ability to adjust output to price on representative farms.

CHARACTER OF POTENTIAL BENEFITS: Improved production planning by individual farmers and agribusiness firms; a sounder basis on which to make and carry out price and production programs for agriculture.

TITLE: Effects of technology and changing resource prices on inputs used in farming and on farm output. RPA 506-B

SITUATION: New technology is extremely important in determining the supply of farm products and thus to the level of prices and income in agriculture. It may also drastically revise the use and prices of resources--usually substituting capital for labor--and the impact on output may depend greatly on how rapidly such resource adjustments actually take place. Understanding supply behavior in agriculture depends as much on a knowledge of the effects of technology as on a knowledge of response to price (RPA 506-A).

OBJECTIVES: To identify and describe the economic aspects of the process by which new technology affects use and prices of resources and output in farming; to ascertain how the process is influenced by the level of prices, government programs, and vertical integration; to quantify relationships to the extent possible.

RESEARCH APPROACHES:

A. Identify major innovations affecting particular types of farming, using data from the census, manufacturers of farm supplies, ERS, and other sources to trace through the sequence of adoption, resource shifts, changes in farm size, changes in farm output, and other economic consequences.

B. Use econometric methods in the general way described in RPA 506-A to obtain numerical estimates of relationships wherever possible.

C. Where data can be obtained for particular types of farms, estimate production functions at different points in time, and develop implications for volume of output and amounts of resources needed in farming.

CHARACTER OF POTENTIAL BENEFITS: More accurate prediction of changes in production, employment of labor, use of capital, etc., in agriculture as technology now being introduced has its full effect; more accurate bases upon which to judge the benefits of farm technology and to whom they go; a sounder basis on which to devise and carry out price and production programs for agriculture.

TITLE: Demand for Farm Products. RPA 506-C.

SITUATION: Changes in amounts of farm products demanded in markets are of great importance to individual farmers, to groups of farmers engaged in bargaining or cooperative marketing, to food and fiber processors and distributors, and to framers of farm price and income policy. Much research has been devoted in the past to measuring the effects of prices and consumers' incomes on quantity demanded. Work of this kind should continue in order to extend the scope of knowledge and to up-date it as numerical relations change with the passage of time. Of particular importance in this connection is the increasing availability of imitation products, which can greatly modify how consumers and processors respond to prices of farm commodities. Demand analysis also needs to be extended to include the effects of variables other than price and income; dietary considerations, convenience, promotion, etc., which play more important roles as time goes on. As farmers engage in more group bargaining, they need more refined and particularized information about their products and markets than past studies have ordinarily been able to develop. Information is also needed on the effects of size of family, ethnic origin, age, and similar characteristics of consumers.

Better, more detailed demand estimates are needed for application of modern models to analyze structure, income potential, interregional competition, etc.

OBJECTIVES: To obtain quantitative estimates of the response of utilization of farm commodities and products derived from them--individually, in groups, and in total--to changes in prices and consumers incomes over both short and long periods of time; to show the effects, quantitatively so far as possible, of dietary preferences, type of market outlets, promotion, and similar variables on utilization; and to show the relation of consumer and household characteristics to food, fiber, and tobacco consumption.

RESEARCH APPROACHES

A. Apply econometric methods to time series data on consumption, prices and incomes; so far as possible, bring such variables as dietary preferences, promotion, and market outlets (e.g., relative importance of the institutional market) into the same analytical framework.

B. Analyze cross-section data from household surveys and similar sources for effects of consumers' characteristics on consumption.

C. Develop hypotheses about the effects of diet-preference, convenience, promotion, etc., on utilization and test them by studying the market experience of a wide range of products derived from farm commodities.

CHARACTER OF POTENTIAL BENEFITS: Improved ability to predict effects of changes in market supplies on prices; greater ability of processors, distributors, and marketing cooperatives to anticipate short-run market changes and to appraise long-range market opportunities; sounder economic intelligence for farmers engaged in bargaining; more reliable basis for developing and carrying out farm price and income policies.

TITLE: Pricing, including contract pricing, of farm and farm-derived products. RPA 506-D.

SITUATION: The circumstances under which prices are established may influence their stability, level, and effectiveness in guiding resource allocation. In some parts of agriculture, changes in marketing and pricing methods have created acute problems of how to establish prices. Examples of the foregoing are: (1) supermarket operators' practice of "pricing the mix" may shift the burden of covering retailing costs from one food group to another and may reduce the sensitivity of retail prices to changes in farm and wholesale prices, (2) "formula pricing" and by-passing central markets may so reduce the volume subject to genuine price negotiation that prices appear to be semi-arbitrary--eggs provide an extreme example, and (3) increasing concentration of sellers or buyers may result in private administration of prices. Many other situations appear in which the problem focuses on prices rather than on supply or demand conditions lying behind them. As contracts between farmers and buyers become more common, interest is shifting to the means by which contract terms rather than open-market prices become established.

OBJECTIVES: To obtain an understanding of reasons for and possible solutions to various market situations in which the pricing mechanism is considered to work unsatisfactorily; to develop generalized understanding of the effects of concentration, marketing practices, etc., on the level and stability of prices.

RESEARCH APPROACHES: These are difficult to specify in light of the heterogeneity of problems involved. Frequently the question will be how to devise suitable pricing methods when old ones have been permanently modified by changes in industry organization.

CHARACTER OF POTENTIAL BENEFITS: Improved pricing methods, or substitutes for them, by which to coordinate production and marketing in agriculture.

TITLE: Storage and inventory economics. RPA 506-E.

SITUATION: Large quantities of farm commodities and of products derived from them are carried in inventories owned by private industry and farmers, while other stocks are owned by the Commodity Credit Corporation or pledged to it for loans. The aggregate amount of stocks in the nation strongly influences ability to (1) maintain stability of domestic prices and market supplies, (2) meet needs of underdeveloped countries for food assistance, and (3) supply the commercial export market. In addition, inventory management is important to individual farmers and business firms. Large stocks, often excessive ones, have been carried by government as a result of price support operations. During the long period when such stocks were usually available, production of meat animals, poultry products, and milk has become much more specialized and dependent on purchased concentrate feeds. We have little experience to tell us what level of stocks of various commodities, and what range of fluctuation in them, are desirable from an inventory standpoint under current circumstances. Studies are needed to ascertain variability of production and demand and to derive guidelines applicable to efficient management of stocks.

OBJECTIVES: To ascertain the probable variability of production of and demand for leading storable farm products and to develop guidelines for optimal storage policy by private and public decision makers.

RESEARCH APPROACH: Ascertain the variability of the various sources of demand and of production, estimate storage costs, express price stability and net costs (or gains) as a function of inventory rules, and evaluate public and private benefits of alternative stock policies.

CHARACTER OF POTENTIAL BENEFITS: Clearer indications to the private trade concerning needs for stocks and, as a result, more efficient private inventory management; an objective basis for determining the need for and operational procedures of a government reserve-stock policy.

TITLE: U.S. comparative advantage in foreign trade in farm products.
RPA 506-F.

SITUATION: Commercial exports are an important part of the total demand for a number of farm products, while imports are an actual source of supply in some instances and a potential source in others. It is in the nation's interest to export products we produce comparatively efficiently and to import those we do not. Questions about comparative advantage are involved in trade negotiations under GATT, in international commodity agreements, and in domestic farm policy. Comparative advantage is also important to farmers--for example, beef producers--who wish to appraise their ability to compete in foreign markets or against imports. Economic analysis often is needed to show comparative advantage because import barriers in various countries, export subsidies, and aids to producers have greatly modified international trading prices and product flows in numerous instances.

OBJECTIVE: To appraise the comparative advantage of the U.S. in the production of internationally traded farm products.

RESEARCH APPROACHES:

- A. Adjust prices for import duties, export and production subsidies and make comparisons of adjusted prices among countries, taking into account also the tendency of production to increase or decrease in response to realized prices in the past.
- B. Compare production costs, technology, availability and prices of inputs such as feed or fertilizer, and related factors affecting producers' current and prospective ability to compete internationally without assistance.
- C. Evaluate the effectiveness of current interventions in modifying trade, and the apparent effects of their removal.
- D. Develop and apply large-scale non-linear programming models of trade and competition.

CHARACTER OF POTENTIAL BENEFITS: Sounder basis for framing foreign trade and farm policy; clearer picture for producer groups regarding their ability to compete internationally and what their strengths and weaknesses are.

TITLE: Incomes of farm and other rural people. RPA 506-G.

SITUATION: Personal incomes and rates of return on labor and investment vary widely within agriculture and the rural economy. So do the sources of income, especially as between farm and nonfarm sources. Large differences exist between average incomes of several subgroups and incomes of referent groups in other sectors of the general economy. The differences are important in motivating people to make changes and thus to understanding occupational and geographic shifts of population. In particular, the

differences are highly relevant to policy for commercial agriculture, to poverty programs, and to rural area's ability to pay for social services. Money incomes need to be adjusted for nonmoney income and cost of living before refined comparisons can be made among groups. Rates of return on labor and investment in commercial agriculture are useful, in addition to family incomes. Research in this area must constantly be up-dated, for relative incomes frequently change.

OBJECTIVES: To measure incomes of groups within agriculture and the rural economy; to compare incomes and rates of earnings in the farm and rural sector with incomes of nonfarm and urban groups; to ascertain reasons for differences in incomes.

RESEARCH APPROACHES:

- A. Investigate means and costs of obtaining more adequate income data on a regular basis. (Collection of data is not called research here but is obviously essential to it.)
- B. Make cross-sectional income studies for special purposes.
- C. Ascertain and put values on nonmoney income, and add to money income; adjust for cost-of-living differences.
- D. Compute rates of return on labor and investment in commercial farming and compare with nonfarm rates.
- E. Relate incomes to education, mobility, race, and other variables that might be casually associated with it.

CHARACTER OF POTENTIAL BENEFITS: Improved understanding of the pattern of rural incomes, the reasons for it, and changes that result from it; factual data bearing on the need for economic and social programs for farmers and other rural groups; a measure of the success of such programs.

TITLE: Long-run supply-demand balance in agriculture. RPA 506-H.

SITUATION: Both total utilization and total production of farm commodities increase over time, but their rates of growth are dependent on different sets of circumstances. Neither utilization nor output is readily influenced by prices when one outruns the other; imbalance over protracted periods can be serious for consumers or farmers. Long-range studies of apparent potential growth rates are important, therefore, so that imbalances can be anticipated and actions taken to avoid or reduce them. Such studies must be repeated periodically to take into account new directions in technology, foreign demand, synthetics, and the like. Techniques should improve as experience shows how early studies could have been improved.

OBJECTIVES: To estimate utilization and production of farm commodities one and two decades in the future at various levels of prices; to estimate future requirements for resources in agriculture.

RESEARCH APPROACH: Assemble from informed sources technical information about production methods, utilization processes, and competition from synthetics; estimate the extent to which known technology is currently in use; using various types of econometric models applied to time-series data and the application of a wide range of linear and non-linear activity models; appraise future domestic and foreign markets and possible food aid requirements; project production and utilization for future points in time, using assumptions about prices, technology, etc., that cover the range of likely developments; and translate the most relevant production estimates into requirements for labor, land, and various forms of capital in farming.

CHARACTER OF POTENTIAL BENEFITS: Basic information for long-run planning by farmers, supply and processing firms, and framers of public policy dealing with commerical farming, natural resources, and rural development.

TITLE: Supply, demand, and prices of agricultural inputs. RPA 506-I.

SITUATION: Inputs purchased from off the farm, such as machinery, fertilizer, and petroleum products, are a large and growing portion of total inputs used in farming. Accordingly, prices of purchased inputs are approaching prices of farm products in importance in determining changes in net farm income. Technology in production of leading inputs--e.g., fertilizer--is highly important to farm output. Understanding the total agribusiness complex, as well as understanding the economic position of farmers, requires knowledge of supply, demand, and price behavior in the input industries.

OBJECTIVES: To identify determinants of the quantities demanded and supplied of principal farm inputs, to measure their quantitative effects, and to describe and explain behavior of prices of such inputs.

RESEARCH APPROACHES: Use econometric methods of analyzing time series data on utilization and production of farm inputs and on variables hypothesized to influence them; analyze price behavior, particularly in light of market structure of the industries; make case studies of technological and marketing innovations for particular manufactured inputs.

CHARACTER OF POTENTIAL BENEFITS: Improved understanding on the part of supply firms and farmer cooperatives about the markets in which they operate; better insight into future supply and price situations for leading inputs on the part of farmers and makers of farm policy.

TITLE: Agribusiness sector analysis. RPA 506-J

SITUATION: Production of food and fiber for consumers is becoming an increasingly coordinated series of operations beginning with off-farm manufacture of machinery, fertilizer, and other supplies, continuing with production of raw materials on the farm and with processing raw materials into finished goods, and ending with distribution to consumers. Coordination has taken the form of vertical integration in several instances and involves contracts and less formal working arrangements in others. The most efficient or competitively viable way of operating a farm cannot be determined solely by looking at farms; rather, the farming link in the most efficient chain of activities from production of farm supplies through to sale of final product to consumers is likely to come to dominate farming. The same principle applies to production of farm supplies, to processing, and to distribution. Distinctions between "farming," "marketing," and "farm supply" are becoming fuzzier and less meaningful in several areas. Acquiring an understanding of many economic problems in the agribusiness complex, therefore, requires analysis within a broader framework than has been customary in past research. Some other RPA's view related marketing operations or related farm production processes as subsystems to be studied, and properly so; the purpose in this RPA is to recognize the need for analysis of broader sectors than other RPA's are meant to treat.

OBJECTIVE: The objective is not to deal with an unique problem but is, rather, to provide a place in the inventory of agricultural research for work that must extend well beyond the limits of other RPA's to be fully productive.

RESEARCH APPROACH: Organizational, price, and other economic problems should be appraised without conceptual limitations likely to be imposed if the researcher views them only as farm management, marketing, policy, or other limited-area problems. Where a problem clearly and necessarily involves more than one conventional area, a subsector should be defined that is large enough to include the essential elements of the problem but is small enough to be manageable. Researchers who can bring to bear the necessary technical knowledge, analytical methods, and information about market institutions should cooperate in the necessary analysis, which usually will differ from less broadly defined research by taking into account interactions among the individual processes or activities that comprise the whole. Usually but not always the activities will be vertically related to each other. A team approach will almost always be essential. Study of a large subsector is likely to turn up specific problems not previously recognized or to put familiar ones in a new light; some of these probably can then be studied in a more restricted setting.

CHARACTER OF POTENTIAL BENEFITS: More realistic conception of farm supply, farming, processing, and distribution activities as related and increasingly less distinguishable parts of a complete system, and more effective research on economic problems affecting all or a large part of the agribusiness complex.

TITLE: Improvement in Agricultural Statistics. RPA 511.

SITUATION: Accurate information concerning production, marketing, and pricing of farm products is essential for making wise decisions by farmers and private industry, by government (both for administration and for legislation), and for research. Dynamic changes in the whole fabric of production, marketing and structure of agriculture have at one time greatly expanded the amount, precision, and detail of information needed and complicated the problems of collecting this information. One of the dynamic changes has been the integration of supply, production, and marketing functions. With the increase in integration, the points at which meaningful data have traditionally been collected are losing their relevance. A new structuring of the statistics is essential to bring statistical measures into agreement with the actual production and marketing system. The need for more and better crop and livestock estimates is a very fundamental facet of the problem. However, the entire field of statistics relating to agriculture including farm income and population and market prices of farm products is equally in need of expansion and rehabilitation. Traditional methods of collection and estimation of economic statistics for agriculture cannot produce the data needed to analyze and understand the dynamic changes in agriculture. The reconstruction of the statistical program in terms of content and parameters to be estimated will require much research effort in addition to research in the techniques of effective and efficient data collection.

OBJECTIVE: To discover and devise means of collecting needed data more accurately, of making the results available more rapidly, and of accomplishing both these results at reasonable cost.

RESEARCH APPROACHES AND AREAS:

- A. Intensify study of questionnaire and survey design and definitions to reduce non-sampling errors in collection of crop, livestock, yield, production, price, farm labor, and other agricultural data.
- B. Intensify research in developing sampling frames - both simple and multiple - as related to yield, production, price, and labor data.
- C. Expand the study of methods of forecasting and estimating yield by objective measurement.
- D. Investigate environmental effects on crop production, particularly the effects of rainfall, temperature, humidity, and cultural practices.
- E. Investigate the application of remote sensing techniques to the estimating of crop and livestock populations.
- F. Intensify research in the application of new technology in transmission and data processing to crop, livestock, price, labor, and other agricultural data.

G. In recognition of current and prospective trends and developments in patterns of agriculture and marketing, develop definitions and concepts needed for statistical purposes, together with establishment of criteria for classifying agricultural enterprises.

H. Actively investigate possible use of administrative records associated with various public programs as sampling frames and as sources of data.

I. Institute research on the needs for, usefulness of, and methods needed for the collection and dissemination of market news data for farm products.

CHARACTER OF POTENTIAL BENEFITS: Improved data will facilitate more accurate decisions by farmers and by businessmen servicing agriculture, by government administrators, by legislators, and by research workers.

C. Raise Level of Living of Rural People -- Goal 8

The broad objective of research under this goal is to assist the more than 50 million rural Americans to improve their level of living. Four specific purposes are cited. Two of these -- B. Improve the income position of farm families by increasing the proportion of adequate farms and encouraging other structural improvements in the agricultural industry, and D. Increase the effectiveness of government programs in balancing supply and demand at reasonable prices and without burdensome program costs-- are pertinent to the responsibilities of this task force. Our attention focuses on RPA 807 Structural Changes in Agriculture and RPA 808 Government Programs to Balance Farm Output and Market Demand. RPA 807 is divided into three subareas; RPA 808 into four. The recommended research program for each of these seven subareas is presented in the following pages. The recommended increase for RPA 807 is 86 percent. For RPA 808, it is 89 percent.

<u>Inventory</u>		<u>Recommendation</u>
	<u>1966</u>	<u>10 Years</u>
RPA 807 SMY's	57	106
RPA 808 SMY's	36	68

TITLE: Analysis of Structural Changes in Agriculture. RPA 807-A.

SITUATION: The changing structure of agriculture produces changes in production response to price-cost conditions, in the demand for farm inputs, in participation in farm programs, in the control of farm resources and decision-making, in the flow of returns and farm program benefits to resources and resource owners and in the general terms of trade under which the agricultural industry operates. These developments are of critical importance to many issues of public policy as well as private decision-making, yet, our traditional data do not permit measurement of the changing structure of agriculture so as to permit reliable economic analyses of these issues.

OBJECTIVES: To provide more accurate and detailed description of the current structure of agriculture and to project key changes in the future structure.

RESEARCH APPROACHES:

A. Through use of new surveys and additional analysis of data from the Census of Agriculture, IRS and other secondary data sources, estimate the number, size, type, and organizational basis for the population of farms in the United States. Also, needed are improved estimates of the shares of production and income for major groupings of farms. A survey of corporation farming, currently in process, will need more "in depth" coverage and analysis. The extent of vertical integration in agriculture needs accurate and meaningful measurement in order to determine the control of production resources, the flow of resource returns and the control of decision-making in agriculture.

One of the objectives of this line of research should be that of projecting the size, number and organizational mix of farming units into the future. Such projections need to include an estimate of the share of production or market realized by corporation farms, other large-scale farms and family-scale farms for major commodities for such future time periods as 1975 and 1980.

B. The Balance Sheet of Agriculture needs to be expanded to provide an improved picture of the national and regional levels of capital used in farming, what portion of it is owned by corporations, farm operators, landlords and other groups and the terms under which this capital is made available to farm operators. Intensive analysis needs to be made of the differences in financial arrangements, marketing arrangements and economies of production being realized by corporations, large-scale farms and family-scale farms producing major farm commodities.

CHARACTER OF POTENTIAL BENEFITS: Better understanding of the changing structure of agriculture can improve the basis for rational public policy formulation and administration as well as contributing information farmers need for management decisions.

TITLE: Effects of Changing Structure of Farming on Competitive Position of family-scale farms. RPA 807-B.

SITUATION: Farms are rapidly increasing in size and decreasing in number. Added involvement in farm production and decision-making is allegedly coming from the farm supply industry, food processors and even from large publicly owned conglomerate corporations. These changes may seriously threaten the future competitive position of the family-scale farm.

OBJECTIVES: To appraise the future competitive position of family-scale farms under likely future developments.

RESEARCH APPROACHES:

A. Through surveys and case studies, determine the access of family as compared to larger-than-family-scale farms (including but not limited to large-scale corporations) to capital, production resources generally (especially land) and to markets for farm products.

B. Determine and appraise the nature of incentives which encourage farming activities by publicly held corporations (including corporations previously non-agricultural in nature but which may diversify their operations by moving into agriculture). Incentives for those firms which have ongoing interests in the farm supply business or in the marketing, processing or retailing of farm products to enter farming also need to be appraised. An additional incentive that needs particular research attention is the one of the incentive (for individuals and corporations) to engage in farming as a tax shelter measure for income derived outside of farming.

CHARACTER OF POTENTIAL BENEFITS: Better understanding of implications of the changing structure for family-scale farms can improve the competitive position of such farms.

TITLE: Effects of Changing Structure and Functions of Farm Input Supply and Farm Product Processing and Marketing Firms on Farmers' Income and Costs. RPA 807-C.

SITUATION: The farm sector of the economy is more and more taking on characteristics of other sectors of the economy as it purchases a high proportion of its inputs (70 percent or more in some types of farming) and produces products with rigid quality and grade specifications. Thus, the changing functions of the off-farm input supply and processing firms have major effects on the costs, incomes, terms of trade and general operations of farmers.

OBJECTIVES: Determine the effects of changes in the structure and functions of the off-farm components of the agricultural industry on changes in costs, incomes and decision choices of farmers.

RESEARCH APPROACHES:

A. Special studies need to be made of those commodities where trends toward "specification production" are increasing. Among the questions toward which research needs to be directed are those of, "what are the effects on farmers income, risks, production and production alternatives?" And, "does this development penalize family-scale producers?"

B. Other analyses should determine the extent to which increased concentration and size of farm supply and processing firms are occurring and whether or not such occurrence may permit them to exercise economic power over the "farm production sector" with its high incidence of numerous, family-scale units. Among the types of economic power which need study are ability to "set prices," to "limit the purchasing and marketing choices of farmers," and to "absorb additional functions from the farm production sector."

C. Still other analyses should determine the impact on the costs of supplying farm products, on price stability in input and product markets and on resource earnings of shifting to increased vertical integration in farming. Livestock products and specialty crops are of particular importance for such research attention.

CHARACTER OF POTENTIAL BENEFITS: More adequate knowledge of changes in the structure of the input supply and farm product marketing industries can reduce farm production expenses and increase farm income.

TITLE: Predicting Responses of Farmers to Various Economic Influences.
RPA 808-A.

SITUATION: Policy officials continually have to make and evaluate decisions on various proposed problem solutions such as balancing supply, supporting prices, adjusting cropland, and making incentive payments. In doing this they must also evaluate the alternative strategies. Observation of history supports the belief that the greater the amount of before-hand knowledge, the lower the probability of mistakes. Among the most useful kinds of beforehand information to policy makers and administrators would be systematically obtained estimates of the response of farmers to various economic influences, including department programs affecting the supply of farm products as means of affecting farm prices and incomes.

In the past, much of the information economists have been called upon to supply for program decisions has been requested for special purposes on short notice. There has been little opportunity for economists to build models to predict economic behavior and measure impacts with the same model. Where this approach has been used, it has been very fruitful, and questions have been answered much more quickly with high-quality statements than would have been the case otherwise.

OBJECTIVE: To develop economic models to analyze and predict the response of farmers to various economic influences, including possible alternative programs for balancing supply and supporting prices, cropland adjustments, and incentive payments; to evaluate alternative strategies to stabilize farm prices and incomes through price supports, government purchases of farm products, and storage of surplus stocks against periods of short supply; to appraise various supply restraint and production incentive alternatives for use as needed.

RESEARCH APPROACHES:

- A. Examine and appraise existing economic models for effectiveness in predicting farm output responses to various economic influences.
- B. Construct or reconstruct, as necessary, models for predicting farm output responses to various economic influences, especially to government programs.
- C. Carry out a continuing program of testing and validating the models for predictive accuracy.
- D. Test models for appropriateness for evaluating alternative strategies and programs for influencing the supply of farm products in order to affect their prices.
- E. Perform the predictions and evaluations for which the model is appropriate.
- F. Carry out a continuing program of improving the model for (1) predicting farm output behavior, (2) evaluating programs, and (3) contributing to basic knowledge of economic behavior.

CHARACTER OF POTENTIAL BENEFITS: Increased speed and accuracy in obtaining predictions of farm output behavior and less uncertainty of program impacts. Also, there would be potential side benefits of contributions to the area of basic knowledge of farm production behavior.

TITLE: Farm Price and Income Programs of Government. RPA 808-B.

SITUATION: Government programs to stabilize farm prices and incomes are recognized to have an important influence on supplies, prices and stocks of farm products, exports and imports, farm incomes and government costs. Less well recognized are the impacts of such programs on distribution of incomes, including factor incomes, within agriculture, impacts on the geographical distribution of business and income and the incidence of the costs of such programs. Continuing evaluation of the effectiveness of past and present programs in stabilizing and supporting farm income at reasonable cost is essential to informed decision-making. Development of improved program proposals is also urgently needed. In both cases the evaluation should be

expanded and intensified to include all significant impacts, indirect as well as direct. The results of this research would be highly useful to policy decision makers and administrators, students of the effects of farm programs and economic and business analysts.

OBJECTIVE: To measure the impacts of actual and proposed government farm programs on the levels and distribution of production, prices, incomes and costs within agriculture, within related sectors of the economy, and within regions of the United States; to make similar measurements between agriculture and other economic sectors, and among regions by economic sector; to develop improved program proposals.

RESEARCH APPROACHES:

- A. Trace the effects of government programs in agriculture on agricultural output, prices, factor incomes, and costs and on the same items in other sectors of the economy.
- B. Compare impacts of government programs in agriculture as between agriculture and other sectors of the economy.
- C. Compare impacts of government programs in agriculture on the various regions of the U.S.
- D. Identify the impacts of government programs in agriculture on personal income distributions within agriculture, within other economic sectors, within regions, and among these industries and regions.
- E. Develop basis for improved program proposals.
- F. Identify and measure the magnitudes of interdependencies within the agricultural sector and between agriculture and each of the other economic sectors for the U.S. and its regions.
- G. Use simulation models to analyze response to alternative policy and program goals, their trade-offs and optimal combinations of them.

CHARACTER OF POTENTIAL BENEFITS: Greater understanding of the economic roles and impacts of government programs in the private sector; identification of indirect beneficiaries and cost payers; greater precision in program selection and administration in agriculture; provision of more and broader criteria with which to prejudge the acceptability of alternative programs.

TITLE: Impacts of Nonagricultural Programs and Policies on Agriculture.
RPA 808-C.

SITUATION: The magnitude and complexity of economic interdependencies was indicated in RPA 808-B. Government has a large number of programs that are not primarily agricultural in intent but which reverberate through agriculture



either directly or via the trading relations among sectors, regions, and countries. A few of such programs are (1) foreign aid and development, (2) domestic welfare programs such as school lunches, food stamps, and direct distribution of food to needy families, (3) regional development of viable economies, (4) green belt and open-space programs, (5) programs of assistance in other industries, (6) tax structure, (7) aid to education, and (8) antitrust.

These essentially nonagricultural programs have a significant influence on levels and distributions of production, income, welfare, and investments in agriculture. Little is known about the regions of competition and complementarity of goals for such programs and those for essentially agricultural programs. This factor alone may in the future exert considerable force on the viability of the market economy as a solution to the overall problems of production, distribution, and welfare in an affluent society whose public sector continues to grow.

Only recently have economists become really aware of the true extent of the complexity of regional and national economies. For example, a study of one state economy indicated that \$1.00 worth of delivery to final demand by field crop agriculture resulted in an increase in Gross State Product of \$1.21, less than half of which occurred in agriculture. In the same vein, a \$1.00 increase in deliveries to processing demand by the same field crop sector resulted in an increase in Gross State Product of \$6.86. These data are presented to illustrate the magnitude of potential program impacts on the economy of just one state.

RESEARCH APPROACHES:

- A. Adopt or otherwise establish a classification framework of and for national programs according to their intent.
- B. Trace the effects of selected programs to or through agriculture with reference to income distribution, distribution of production, farm organization and tenure, average prices, farm size, input prices, factor mobility, and trade magnitudes with other sectors, regions, and countries.
- C. Evaluate the degree of consistency with national objectives for agriculture and with programs that are essentially agricultural in intent.

CHARACTER OF POTENTIAL BENEFITS: Cognizance of the fact that interdependencies between sectors and regions will lead to program effects in agriculture even though they are intended, in the main, to fall elsewhere could lead to greater precision in selecting from among program and administrative alternatives for other sectors in order to bring about the most desirable (or least undesirable size effects in agriculture. This should lead, in turn, to better communication in program formulation and administration between these interested primarily in nonagricultural programs and those interested in agricultural programs.



TITLE: Impacts of Government Programs of Research in Agriculture.
RPA 808-D.

SITUATION: There have been several publications showing the estimated over-all pay-offs resulting from research in agriculture. For the most part, the measurement used was effect on farm income. The analyses should be extended to include indirect costs and benefits. Such extension would permit at least rough identification of the beneficiaries and the magnitude of the benefits they receive. Also, refinement in terms of kinds and areas of research would now appear to be in order. With recent changes in the philosophy of government toward achievement of efficiency in relation to specified goals, stepped-up evaluation of programs of research in agriculture should lead to greater precision in attracting competent researchers to areas of greatest returns to our society and economy.

OBJECTIVE: To gain a more thorough understanding of impacts of various government programs of research in agriculture.

RESEARCH APPROACHES:

- A. Estimate changes in production, costs and incomes in the agricultural sector accruing to government research programs in agriculture.
- B. Estimate impacts of changes in agriculture on other sectors.
- C. Estimate returns in agriculture and the total economy to government program research expenditures in agriculture.
- D. Estimate the influence of government programs of research in agriculture on the evolution of modern agricultural industry structure.

CHARACTER OF POTENTIAL BENEFITS: Guidance for future government programs of research based on costs and the potential magnitude and distribution of returns.